

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

suction nozzles for successively picking up the plural components at one of the component supply tables by suction, thereafter the first mounting head section can be moved to a board positioned at the board mounting position, and thereafter the plural picked-up components can be successively mounted onto the board while the first mounting head section is moved in first and second directions which are perpendicular to each other,

wherein the first direction is perpendicular to a direction in which the board is transferred, and the second direction is located along the board transfer direction; and

HH
cont
a second mounting head section having a plurality of rotatable component suction nozzles, wherein the second head section is capable of rotating the component suction nozzles for successively picking up the plural components at the other of the component supply tables by suction, thereafter the second mounting head section is capable of moving the component suction nozzles to the board positioned at the board mounting position, and thereafter the plural picked-up components can be successively mounted onto the board while the second mounting head moves in third and fourth directions which are perpendicular to each other,

wherein the third direction is parallel to the first direction, and the fourth direction is parallel to the second direction but is not necessarily the same as the second direction,

wherein each of the first and second mounting head sections is independently moveable between the component supply table and the board, and the first mounting head section is capable of mounting the plural picked-up components onto the

25/1
Conclude

board while the second mounting head section successively sucks to pick up the plural components at the other of the component supply tables.

9. The component mounting apparatus as claimed in claim 8, wherein said each of said first and second mounting head sections is moveable in two directions which are perpendicular to each other and are parallel to a surface of the board.

10. The component mounting apparatus as claimed in claim 8, further comprising a controller for mutually controlling the first and second mounting head sections in accordance with a timing at which, when one of the first and second mounting head sections carries out a component picking-up operation for picking-up the components from the component supply table, the other of the first and second mounting head sections carries out a component mounting operation for mounting the picked-up components onto the board.

11. The component mounting apparatus as claimed in claim 9, further comprising a controller for mutually controlling the first and second mounting head sections in accordance with a timing at which, when one of the first and second mounting head sections carries out a component picking-up operation for picking-up the components from the component supply table, the other of the first and second mounting head sections carries out a component mounting operation for mounting the picked-up components onto the board.

13. The component mounting apparatus as claimed in claim 9, wherein one of the first and second mounting head sections has a plurality of component suction nozzles for sucking the components at one time.

14. The component mounting apparatus as claimed in claim 10, wherein one of the first and second mounting head sections has a plurality of component suction nozzles for sucking the components at one time.

15. The component mounting apparatus as claimed in claim 11, wherein one of the first and second mounting head sections has a plurality of component suction nozzles for sucking the components at one time.

18. (Thrice Amended) A component mounting apparatus comprising:

a pair of component supply tables for accommodating a plurality of components, said component supply tables being arranged on opposite sides of a board mounting position;

7/8 a first mounting head section for successively picking up the plural components at one of the component supply tables and thereafter successively mounting the plural picked-up components onto a board, positioned at the board mounting position, while moving in first and second directions which are perpendicular to each other,

wherein the first direction is perpendicular to a direction in which the board is transferred, and the second direction is located along the board transfer direction; and

a second mounting head section for successively picking up the plural components at the other of the component supply tables and thereafter successively mounting the plural picked-up components onto the board, positioned at the board mounting position, while moving in third and fourth directions which are perpendicular to each other,

wherein the third direction is parallel to the first direction, and the fourth direction is parallel to the second direction but is not necessarily the same as the second direction,

wherein each of the first and second mounting head sections is independently movable between the component supply table and the board,

wherein each of the first and second mounting head sections has a plurality of rotatably supported component suction nozzles for sucking a plurality of the components prior to a component mounting operation, and each of the mounting head sections is capable of rotating the component suction nozzles,

wherein the first mounting head section is capable of mounting the plural picked-up components onto the board while the second mounting head section successively sucks to pick up a plurality of the components at the other of the component supply tables.

19. A component mounting apparatus according to claim 8, further comprising a board positioning section for positioning the board such that the board is not moved during the mounting of the components.

20. A component mounting apparatus according to claim 8, wherein said component supply tables accommodate different kinds of components.

21. A component mounting apparatus according to claim 18, wherein said component supply tables accommodate different kinds of components.

22. A component mounting apparatus according to claim 8, wherein at least one of said component supply tables is capable of continuously supplying the components.

23. A component mounting apparatus according to claim 8, wherein at least one of said component supply tables is capable of continuously supplying the components.

24. A component mounting apparatus comprising:
a pair of component supply tables for accommodating a plurality of components, said component supply tables being arranged on opposite sides of a board mounting position;

a first mounting head section having a plurality of nozzles that are rotatably supported for successively picking up more than one of the components at one of the component supply tables and thereafter successively mounting the picked-up components on a board that is positioned at the board mounting position, said first mounting head section being movable in first and second directions which are perpendicular to each other,

wherein the first direction is perpendicular to a direction in which the board is transferred, and the second direction is along the direction in which the board is transferred; and

a second mounting head section having a plurality of component suction nozzles that are rotatably mounted for successively picking up more than one of the components at the other of the component supply tables and thereafter successively mounting the picked-up components on the board, positioned at the board mounting position, while the second mounting head section moves in third and fourth directions which are perpendicular to each other,

wherein the third direction is perpendicular to a direction in which the board is transferred, and the fourth direction is along the direction in which the board is transferred;

wherein each of the first and second mounting head sections is independently movable between the component supply tables and the board,

wherein the first mounting head section is capable of mounting the plural picked-up components on the board while the second mounting head section successively picks up the plural components at the other of the component supply tables.

25. A component mounting apparatus according to claim 24, further comprising a board positioning section for positioning the board such that the board is not moved during mounting of the components.

26. A component mounting apparatus as according to claim 24, wherein each of said first and second mounting head sections includes a rotary member that is rotatable about a horizontal axis, wherein said plurality of component suction nozzles are positioned on said rotary member at regular intervals about the horizontal axis.

27. A component mounting apparatus according to claim 24, wherein said component supply tables accommodate different kinds of components.

28. A component mounting apparatus according to claim 24, wherein at least one of said component supply tables is capable of continuously supplying the components.

29. The component mounting apparatus as claimed in claim 8, wherein during at least one operation of the first mounting head section in a component sucking operation and a component mounting operation, the second mounting head section is prevented from moving between the board and the component supply tables.

30. The component mounting apparatus as claimed in claim 8, wherein the first head section includes a first rotary member that is rotatable about a horizontal axis, and the component suction nozzles are mounted on the first rotary member so that each of the component suction nozzles can be selectively and sequentially directed downward to suck a component from one of the component supply tables and mount the sucked components onto the board.

31. The component mounting apparatus as claimed in claim 18, wherein during at least one operation of the first mounting head section in a component sucking operation and ^{the} a component mounting operation, the second mounting head section is prevented from moving between the board and the component supply tables.

32. The component mounting apparatus as claimed in claim 18, wherein the first head section includes a first rotary member which is rotatable about a horizontal axis, and the component suction nozzles are mounted on the first rotary member so that each of the component suction nozzles can be selectively and sequentially directed downward to suck a component from one of the component supply tables and mount the sucked components on the board.

33. The component mounting apparatus as claimed in claim 24, wherein during at least one operation of the first mounting head section in a component sucking operation and a component mounting operation, the second mounting head section is prevented from moving between the board and the component supply tables.

34. The component mounting apparatus as claimed in claim 24, wherein the first head section includes a first rotary member which is rotatable about a horizontal axis, and the component suction nozzles are mounted on the first rotary member so that each of the component suction nozzles can be selectively directed downward to suck a component from one of the component supply tables and mount the sucked components on the board.